

# Boğaziçi Math Seminar

## Bent Partitions

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**Abstract:**

Since bent functions were introduced by Rothaus in 1976, they have been studied extensively due to their numerous applications in various areas such as cryptography, coding theory, combinatorics, and finite geometry. Two powerful primary constructions have been known for several decades, namely the Maiorana-McFarland construction and the spread construction. Recently, the spread construction has been generalized under the concept of bent partitions, introduced by Anbar and Meidl.

In this talk, we demonstrate that a large number of bent functions can be generated from these partitions. The obtained partitions can be viewed as a generalization of the Desarguesian spread, which appears as a special case, yet they do not arise from any spread.

Moreover, for certain semifields whose duals satisfy a linearity property, we construct bent partitions that generalize the classical semifield spread, providing new insights into the structure and diversity of bent function constructions.

**Date :** Wednesday, November 12, 2025

**Time:** 13:30

**Place:** TB 130, Boğaziçi University